Tape OP GEAR ReV IEWs

RETRO Instruments
2A3 Dual Program EQ

This story begins badly, but stick with it; it gets better. Naturally, I was amped to fondle the new RETRO *2A3 Dual Program EQ*, whose circuits are based on one of my favorites, the venerable Pultec EQP-1A3. I would like to pretend that I'm an unbiased reviewer; I'm not. I love both the RETRO Sta-Level (*Tape Op* #61) and the 176 (#66), and I expected to feel the same about the *2A3*. A few months ago, I got the unit, plugged it in, ran some stuff through it, and... Hate is a strong word, really, one that should be reserved for things like Nazis and Teletubbies and people who don't use turn signals. I didn't hate it, but I didn't like it — insofar as I expected it was going to sound like a clone of a Pultec. It didn't. I picked a great vocal track and ran it through my vintage EQP-1A3. Sweet. Plugged through the RETRO. Meh. Actually, the low end sounded pretty great. It was nice and thick and solid and not mushy but pillowy smooth, in a tube-ish way. But the top end wasn't *Magic*. And that's what I was hoping for. So I emailed RETRO and reported thusly, figuring that would be that; they'd tell me I was crazy, deaf, or both, thereby ending another chapter of the Things That Try to Sound Like Pultecs and Don't. But Phil Moore is a persistent cat and he wouldn't take meh for an answer.

Did I mention that this was an extremely early prototype of the unit? Sorry. *This was an extremely early prototype of the unit.* So, I emailed Phil and said, "Phil, the low end is nice but the top end isn't Magic." He asked, "What does *Magic* mean?" I responded, "Hell if I know but that's what happens to the high end when I run stuff through my EQP-1A3, and I can't get it out of the *2A3*. Sorry." Phil responded, "Don't be sorry, I want to hear what you're hearing, so just ship me *your* Pultec."

Who does stuff like this? Over a course of the next few months, my EQP and the *2A3* made a couple of cross-country trips. Measurements were made and listening done. I'm guessing that he's also probably shot out every available transformer and tube out there for this thing too; the process really feels thorough. Finally, after a few revisions, the final RETRO *2A3* arrived back at my studio — the same version shipping today. So, does it sound great? Yes, it does. Does it sound like a Pultec?

No, it doesn't. Let's rest this — *nothing* is ever going to, just like nothing Fender makes today is going to sound like a good 1964 Jazz bass. I've heard painstakingly exact copies of vintage Pultec EQs, replicated down to the transformer windings, and they don't sound like a vintage Pultec. Or at least like mine. I'm pretty sure nobody knows why really, if it's aged components or the iron in the transformers or the ghosts in the machine. And there's a good argument that no two vintage pieces sound the same anyway. But Pultec addicts know that there's a select few that just sound like, well, Magic. But who cares? The RETRO *2A3* isn't a Pultec, it's the third of the new classics that this company is so good at creating, and it sounds great. There are three things that I specifically like about it — the top, middle, and bottom.

The sparkle on the top end is great. I use it in series with my Pultec on every vocal I mix and will keep it there until someone shoots me and steals it. The highest band is phenomenal; it's not the Pultec Magic glow thingy, it's the Open and Airy and Effortless thing way up high that really makes a great vocal shine and sound open and yet cut through without hurting. And this is a beautiful thing, because this characteristic translates really well to things like overheards, acoustic guitar, piano, strings, and the like. It's a really great top-end boost, up there with vintage Pultec, the Cello Palette, and the Sontec Mastering EQ.

The midrange is my favorite part of this box. It's my personal opinion that the midrange of the RETRO *2A3* is the best I've ever heard. It's a difficult range to do well, and the RETRO nails it. Vocal and guitar definition for days. It's eminently usable, and that's a blessing, as most midrange EQs can get really harsh or barky, and this one is smooth and present at the same time. Honestly, I was really shocked. (Even the first iteration had amazing midrange.) It's worth owning for that alone.

The bass is sweet and tight, but the best part here is the addition of the subsonic filter switch. There are two settings — 40 Hz and 90 Hz. The 90 Hz filter does rolloff, sure, but switching in the 40 Hz filter does Magic. Paradoxically, it makes the bass sound tighter and fuller and better; it feels like there's more sub bass, not less, but it's not boomy — it's just killer. And it works on vocals, bass, guitars, the whole mix — you name it. It's a revolutionary addition — and improvement — to the venerable Pultec circuit. Apparently, it uses an interstage transformer that colors stuff and a sharp cutoff or whatever — I don't actually care. I just know this is the magic bullet for the old Pultec LF issue where the wide curves force subsonic garbage into overdrive and you lose headroom and things get all muddy and sloppy. 40 Hz rolloff switch — problem solved. It makes the whole unit sound better. I can't wait to cut kick drum with this thing. And electric guitars — a Neve Class-A preamp, Sennheiser MD 409, and RETRO *2A3* sounds fantastic on a guitar cab.

If you're still in the recording business, you're online, so surf to RETRO's site to stare at all the lovely frequencies and switches and geek stuff. The build is standard RETRO, which is to say, it's totally overbuilt, super-heavy-duty, and gorgeous to look at. It's also heavy as hell; it must be all the custom transformers in this thing. They stuck with the killer hash marks on the panel that make it super-easy to read and recall. XLR I/O is also nice. I urged a mono/stereo switch in place of the power switch (who turns off tube gear anyway?) but got shot down. I'd love to see an option for Goldpoint switches in place of pots for mastering guys and control freaks, and apparently, that option may be in the cards. I lobbied for some different frequencies, but really, why mess with the slightly expanded (14, 6, and — thank God — 1.5 kHz AKA bass growl) kid-tested, mother-approved ones on there? Honestly, I'd love to see this in a modular format at some point; I would likely build a 4-band unit with one Low, two Mids, and one High section — especially for vocals. I'd also love to see a High/Low stereo-only model for mix bus. I can easily see myself owning more than one of these in the future; it really is that good, and I use it on every song I mix. So, as an apology for my earlier rant, dear RETRO *2A3 Dual Program EQ*, you know that when I hate you, it is because I love you to a point of passion that unhinges my soul. (Apologies to Julie de Lespinasse.) *($3750 street; www.retroinstruments.com)*

–F. Reid Shippen,

Sonnox
Restore plug-in suite

This new trio of plug-ins from UK-based Sonnox (the group that brought us plug-ins based on the Sony Oxford digital console) includes *Oxford DeClicker*, *Oxford DeBuzzer* and *Oxford DeNoiser*. They represent over a year and a half of research and development, and promise significant advances over competing products.

I've been using restoration software professionally for about 15 years. During this period, software companies made big advances in transparency and effectiveness. In recent years, improvements have come in smaller increments, leaving many of us wondering, "What's next?" This situation has not gone unnoticed by Sonnox, who are presenting not just new versions, but a new way of approaching restoration. For the first time, we're seeing intelligence and processing discretion being built into the applications. For example, many contemporary restoration applications work by examining a section of the audio, then processing the whole file. It is sort of like a guided missile. You program, aim, and let loose on a target. The problem with this approach is that source material changes. In some sections, one type of processing is appropriate, while in other sections, it is not. To get around this, more astute restoration engineers would chop up source material, process each section individually, and then reassemble the finished product. While the approach works, it is labor and time intensive, can cause cross fade problems when the audio is stitched together, and is prone to human error when working with extended duration materials (*e.g.*, classical recordings). Large restoration projects take much longer in time and more in fees. The new approach from Sonnox hopes to address many of these concerns.

DeClicker helps to remove clicks, pops, and other quick-burst disturbances. There are three different sections devoted to managing pops, clicks, and crackles. Instead of the standard click-as-a-line display used by almost all click-correction software, the main event window displays events as three-dimensional bubbles across the frequency spectrum (the louder the event, the larger the bubble). By lowering the threshold, more events are detected, while the sensitivity control tells *DeClicker* how many events to repair. A Diff (difference) button allows you to hear the content to be removed, which is crucial for avoiding over-processing. Without this feature, you can easily remove "good" source signal along with "bad" source signal — throwing the proverbial baby out with the bathwater.

One of the most intriguing features is the Exclude Box, which allows you to tell *DeClicker* to ignore audio by frequency or amplitude. For example, suppose you were processing a drum track but wanted to keep the hi-hats. With other applications, you would have to lower the threshold to allow the hi-hats to pass unprocessed. However, this would allow the loudest clicks through as well. By drawing an exclude box on the area around 12 kHz, for example, *DeClicker* will ignore the hi-hat information in that vicinity but remove clicks in all other areas.

Dialogue Mode is another example of building pseudo intelligence into the system. It allows you to choose two sets of Threshold/Sensitivity settings: one that is used during speech, and a second for background and non-dialogue audio. Anyone who has restored narration, interviews, or theatrical recordings has already set down this issue and is purchasing *Restore*. For those still reading, this level of control could save hours and hours of editing and processing time. You'll have one of those "why didn't I think of that" moments the first time you see the Dialogue Mode screens.

I tried *DeClicker* on several test files I have. (When I run into an issue during a project, I copy the worst offenders to a "Save for Restoration Software Torture Testing" folder.) On every one, the basic setting handled the problems; I didn't touch a single control. Finally, I pulled up a recording that used a dirty clock connection — we're talking real speaker-destroying spikes. *DeClicker* grabbed almost everything right away. I was able to use the Exclude Box to keep the hi-hats out of the removal path. I also wanted to keep some snare hits, but you can have only one Ignore Box at a time. To get around that, I opened up the expert settings and tweaked until the snare was allowed to pass unaffected.

The second title in the *Restore* collection is *DeBuzzer* (think guitar amps and single-coil pickups — bzzzzzzzzz). Most debuzzing applications use a standard comb filter that removes the fundamental and its associated harmonics. For 60 Hz hum (or 50 Hz, depending on where you live), this has been a straightforward process. However, when you run into hums not associated with the electrical grid, this approach falls apart. That's because it is difficult to find the specific source fundamental.

Sonnox has developed three tools to help users lock in on these troublesome frequencies. First, there is a sweepable Frequency Detect option. Just like it sounds, it allows you to scan the area you suspect contains the problem energy. The second is a large FFT (Fast Fourier Transform) display specifically tuned to find consistent components while averaging out other audio. As long as an instrument or voice isn't holding a note, the buzz should stand out visually on this display. The third tool is a built-in tone generator. *DeBuzzer* can generate a control tone that plays along with the audio. As you sweep closer to the source of the buzz, the control tone and the fundamental will have a slow beat frequency. In use, this is very similar to tuning a guitar with harmonics. Once you find the source fundamental, you select it and tell *DeBuzzer* to attack. It will calculate a comb filter specific to the source buzz and eliminate it. Fortunately, you don't need to remove buzz in audio very often; that being said, when it's present, it can ruin an entire track. Having *DeBuzzer*, especially with its ability to seek and destroy non-standard buzzes, is wonderful.

Reaching into my folder of horrors, I pulled out some single-coil guitar buzz files. Not a problem for *DeBuzzer*. In fact, the default setting removed the buzz as if it were never there. Moving on, I used a live-sound recording where ground-loop buzz tormented the bass and guitar tracks. With only minimal tweaking to the defaults, *DeBuzzer* cleaned up the audio. I finally found a recording that had fret buzz on an acoustic. Chopping up the sections in Sequoia, I was able to apply *DeBuzzer* to the sections that had the problem. Since I couldn't find a default that addressed this problem, I used the FFT display to get an idea of where the problem was. Then I used the tone generator to hone in on the fundamental. Once I found the root, *DeBuzzer* did the rest. I wish I had *DeBuzzer* back when we were working on that record.

Noise reduction is probably the first thing that comes to mind when considering restoration software. There are a few ways to go about noise removal; for example, one popular application uses an approach based on digital imaging. But most applications, *DeNoiser* included, use a "noise fingerprint" method. This process works by isolating a region where only background noise is present. The software analyzes this noise and removes it from the entire file. Done. In theory, this would be a perfect solution. But in the real world, the noise is rarely static. *DeNoiser* takes a slightly different route to determining what is noise and what is desirable audio. It examines the entire audio spectrum to determine where the noise occurs and how prevalent it is at different frequencies over time. The "over time" part is the key because *DeNoiser* evaluates the noise relative to the general signal level. This means that *DeNoiser* shows discretion as to the amount of noise it reduces. For example, with traditional approaches, areas where there are pauses, rests, or gaps will end up having the source audio removed as the signal level drops to silence. Raising the removal threshold would allow the source audio to stay. The trade off is increased noise level. With *DeNoiser*, as the source audio dips to the noise floor, only the noise is removed, leaving a smooth decay into silence.

I used a couple of different sources to test *DeNoiser*. First, I used a live recording done at the University of Pittsburgh's Bellefield Hall Auditorium with a spaced pair of Audio-Technica AT4050 mics (*Tape Op* #33) set in omni. They picked up room reflections and the HVAC system. This was a big test for *DeNoiser* as the air conditioning would cycle at different times. With other noise reduction applications, I would have needed to slice the audio into segments — when the HVAC was on or off. Then, I would have had to process each differently and string them back together. This would have taken a long time for a 70 minute concert. *DeNoiser* was able to change the level of processing on the fly. The real secret here was using the Diff button, which allows you to hear the audio that will be removed by *DeNoiser* (all of the *Restore* titles have this feature). It's easy to get carried away and overdo noise reduction. With the Diff button enabled, you can adjust the aggressiveness of the software until you start to hear audio content. At that point, simply back off the reduction amount and you are at an optimal "noise-removed-to-signal-untouched" ratio. And while no noise reduction program can work miracles, the results with *DeNoiser* were very impressive. In fact, average listeners who were unaware of the HVAC issue never noticed it in the final render.

After using the *Restore* bundle for several months, I have the following thoughts. (1) For many users, simply instantiating the appropriate plug-in will solve your audio woes. The default settings were perfect for a surprisingly wide range of issues. However, if set-and-forget is not enough, the advanced controls provide additional control over processes. Actually, "additional" might not be the correct term — *extensive* is more appropriate. (2) It's easy to get lost in the controls. I recommend having a copy of the manual nearby when going into a tweaking mode. There are also about a dozen other interesting features that were not covered here due to space constraints. Be sure to check those out should you demo the software. (3) Finally, at a street price of about $1900, *Restore* is a significant investment. However, once you realize that *Restore* goes head-to-head with offerings from CEDAR and other top-notch titles, the price is but a fraction of what the other options would cost.

Mastering and mixing engineers should strongly consider the *Restore* bundle. It handled some of the toughest tasks I gave it — many times at the default setting. Impressive indeed. *($1895 street; www.sonnoxplugins.com)*

–Garrett Haines, www.treelady.com

Tape Op is made possible by our advertisers.
Please support them and tell them you saw their ad in Tape Op.